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STATISTICAL BULLETIN

METROPOLITAN LIFE INSURANCE COMPANY

VOLUME XIV AUGUST 1933 NUMBER 8

Edwin W. Kopf

1888-1933

IT IS WITH keen regret that we announce the death, on August 3d, of Mr. Edwin W. Kopf, formerly Assistant Statistician of this Company. Mr. Kopf was in his forty-fifth year.

This announcement has especial significance to readers of the STATISTICAL BULLETIN; for Mr. Kopf had, from the very beginning, an active part and a lively interest in its conduct. He contributed many articles and notes to its pages. Many will remember the series of articles on the relationship between morbidity, mortality and weather conditions; on the secular trend and epidemiology of the communicable diseases; on the classification of accidents and on practical measures of controlling them. Mr. Kopf was responsible, in large measure, for many illuminating discussions which have helped to establish the usefulness of this publication. But in a larger way, Mr. Kopf inspired and directed the work of other members of the staff, which resulted in many scientific contributions. In a very real sense, the Metropolitan STATISTICAL BULLETIN is a record of his analytical skill and of his broad range of interests in public health and social welfare activities.

Mr. Kopf was essentially a self-trained man. As a boy he entered the employ of the PRUDENTIAL INSURANCE COMPANY OF AMERICA, where he took advantage of every opportunity to study insurance mathematics and to lay the foundations of an extraordinary grasp of the problems of the insurance business. In 1912 he became Chief Clerk of the newly organized Statistical Bureau of the Metropolitan Life Insurance Company. He was

largely responsible for the training of the personnel; he established high standards of workmanship and inspired many a young clerk to develop real interest and skill in the field of statistical analysis.

Mr. Kopf was preeminently a scholar in the field of business. He read voluminously and was proficient in his knowledge of the history of insurance and of statistical science, both here and abroad. He served many scientific societies both as member and as officer. He was particularly active in the establishment of the CASUALTY ACTUARIAL SOCIETY OF AMERICA and for a number of years was its Librarian. He maintained an extensive correspondence with scientific men abroad and was a valued Fellow of the ROYAL STATISTICAL SOCIETY of London, of the GERMAN SOCIETY FOR INSURANCE SCIENCE of Berlin, and the SWISS ACTUARIAL ASSOCIATION of Zurich. He was a frequent contributor to the JOURNAL OF THE AMERICAN STATISTICAL ASSOCIATION and to other journals interested in medical and public health statistics. He died a relatively young man, but with a noteworthy career behind him. Those who worked with him will long remember a man of fine character, of fertile imagination and of constructive intellect.

LOUIS I. DUBLIN.

Cancer Mortality Higher in 1932 Throughout the United States

EVEN when half of 1932 had elapsed, there were unmistakable indications that the year was destined to record a considerable rise in the cancer deathrate in the United States and that, at the completion of the year, the mortality from this disease would register a new maximum. We forecast this result in the STATISTICAL BULLETIN of July, 1932, basing our judgment on the unprecedented rise in deaths from cancer among the many millions of Metropolitan Industrial policyholders. The facts for this large group of people (which become available months before it is possible to obtain like information for the general population of the country) have always proved to be a good index of what is happening to the people of the country as a whole.

Recently there have come to hand preliminary mortality reports, for the year 1932, issued by the Bureau of the Census; and these show definitely that a large increase in cancer deaths in 1932, throughout the United States, actually occurred. These Government reports relate to 30 states, comprising 47 per cent. of the population of continental United States. There were increases in 25 of them. The 1932 cancer deathrate in this area was 2.7 per cent. higher than the previous maximum, recorded in 1931. The rise would have been much greater but for the

fact that New York, the most populous state, comprising nearly one-quarter of the people in these 30 commonwealths, registered the relatively small increase of 1.3 per cent. in cancer mortality last year.

In two of the 30 states, the cancer deathrate rose more than 20 per cent. in 1932; and in seven states, more than 10 per cent. In Nevada, Montana and Vermont, respectively, the enormous increases of 29 per cent., 22 per cent. and 17 per cent. were registered. Nine states recorded increases from 5 to 10 per cent.

Particular interest attaches to the facts for New England, where all six states show large rises: 4.9 per cent. in Massachusetts; 5.4 per cent. in Maine; 6 per cent. in Connecticut; 7.2 per cent. in Rhode Island; 11.2 per cent. in New Hampshire, and 17.3 per cent. in Vermont. In these states there is a more rapidly increasing proportion of persons in the higher age groups than obtains for the country as a whole; and this may explain, in part, the very considerable increase in cancer mortality in New England. In other parts of the country, the more noteworthy rises were 7.4 per cent. in Colorado; 9.5 per cent. in Delaware; 10.8 per cent. in Idaho; 7.7 per cent. in Kansas; 5.4 per cent. in Maryland; 22.2 per cent. in Montana; 12.0 per cent. in New Mexico; 29.3 per cent. in Nevada; 11.5 per cent. in North Dakota, and 8.1 per cent. in West Virginia. Certain of these states have small populations, and in them we must not attach too much significance to large per cent. increases in a single year. In Nevada, for example, the 29.3 per cent. rise in the cancer deathrate is based on 65 deaths in 1931, and 85 in 1932. The data from these 30 states thus clearly indicate that the cancer rate increased appreciably, last year, throughout nearly one-half of the population of the United States, although negligible declines were recorded in New Jersey, Arkansas and Washington, together with decreases of 3.5 per cent. and 4.2 per cent. respectively in Georgia and Wisconsin.

Census Bureau mortality reports for 1932 from such populous states as Pennsylvania, Illinois, Ohio, Michigan and California are not available, as yet, and will be awaited with keen interest. Lacking them, we cannot tell whether the rise in the cancer deathrate for the entire country, in 1932, was more—or less—than the 2.7 per cent. shown for this group of 30 states. Enough is already known, however, to make it very probable that the increase in the cancer deathrate throughout the United States, in 1932, was greater than the average annual increment recorded over the ten preceding years. The persistent rise in the mortality from this disease, coupled with the marked acceleration in more recent years, is a disquieting item in the public health picture of the country.

The table on page 4 shows the deathrates from cancer, in 1932 and 1931, in these 30 states, together with the per cent. increase or decrease in each.

Deathrates from Cancer and Other Malignant Tumors in 1931 and 1932, and Per Cent. Change; in Thirty States

State	Deathrate per 100,000 Population		Per Cent. Change 1932 from 1931
	1932	1931	
Total	108.5	105.6	+ 2.7
Arkansas	44.4	45.1	— 1.6
Colorado	105.4	98.1	+ 7.4
Connecticut	124.4	117.4	+ 6.0
Delaware	121.3	110.8	+ 9.5
Georgia	53.0	54.9	— 3.5
Idaho	77.2	69.7	+10.8
Indiana	113.6	108.4	+ 4.8
Iowa	121.1	118.7	+ 2.0
Kansas	104.3	96.8	+ 7.7
Louisiana	73.6	69.8	+ 5.4
Maine	147.3	139.8	+ 5.4
Maryland	116.9	110.9	+ 5.4
Massachusetts	143.0	136.3	+ 4.9
Minnesota	127.7	123.4	+ 3.5
Mississippi	55.7	55.4	+ 0.5
Montana	95.4	78.1	+22.2
Nebraska	102.7	102.6	+ 0.1
Nevada	91.4	70.7	+29.3
New Hampshire	160.5	144.3	+11.2
New Jersey	111.0	112.2	— 1.1
New Mexico	51.3	45.8	+12.0
New York	127.5	125.9	+ 1.3
North Dakota	76.4	68.5	+11.5
Rhode Island	142.3	132.7	+ 7.2
South Dakota	82.0	80.2	+ 2.2
Vermont	140.0	119.4	+17.3
Washington	113.4	116.1	— 2.3
West Virginia	63.7	58.9	+ 8.1
Wisconsin	113.4	118.4	— 4.2
Wyoming	69.0	65.8	+ 4.9

Source: Provisional Mortality Statistics. United States Bureau of the Census.

Twelve Years of Life Gained in Twenty Calendar Years

Since 1912 one whole year of life, with a little margin to spare, has been gained, on an average, every other calendar year by the Industrial policyholders of the Metropolitan Life Insurance Company. The new decade, from 1930 to date, has brought a succession of records in the expectation of life, at birth, of this large and representative group of the American working population. The three years, 1930, 1931 and 1932, have not only topped all preceding figures for this group, but each of the three has exceeded its predecessor. The series of figures

for the expectation of life runs: In 1930, 57.36 years; 1931, 57.90 years; in 1932, 58.80 years. The best preceding year was 1927 with 56.42 years, almost a whole year less than the figure for 1930, and over two years less than that for 1932. The following table gives a survey of the ground covered since 1911-1912, the first calendar period for which a life table for the Industrial policyholders was constructed.

TABLE I

Expectation of Life at Birth, Metropolitan Life Insurance Company. Industrial Department 1911 to 1932

Year	Expectation in Years	Year	Expectation in Years
1932	58.80	1925	55.51
1931	57.90	1924	55.62
1930	57.36	1923	54.55
1929	55.78	1922	55.04
1928	55.88	1921	55.08
1927	56.42	1919–1920	51.14
1926	55.02	1911–1912	46.63

Gain 1932 since 1911–1912, 12.17 years

The remarkable feature of this series is the way in which the last three years stand out from the general course of the figures since 1921. This is plainly visible to the eye in the accompanying diagram, in which it will be seen that from the year 1921 to 1929 the line representing successive values of the expectation of life shows only a gentle upward trend, namely, an increase of just about one year in a space of *eight* calendar years. This same amount of increase, that is, one year of life, occurred in a *single* calendar year (on an average) during each of the three ensuing years 1930, 1931 and 1932. We have had occasion previously in these pages to direct attention to this somewhat surprising phenomenon of increased longevity in spite of the prevailing economic depression. Some students of the problem have suggested that this has happened *because* of the prevailing depression. This is a moot question, but should it prove that lack of funds, within certain limits, and the consequent tightening of the belt by many people, is actually conducive to longer life, no doubt many will feel that a shorter but merrier span is to be preferred to a longer lease saddened by an economic depression.

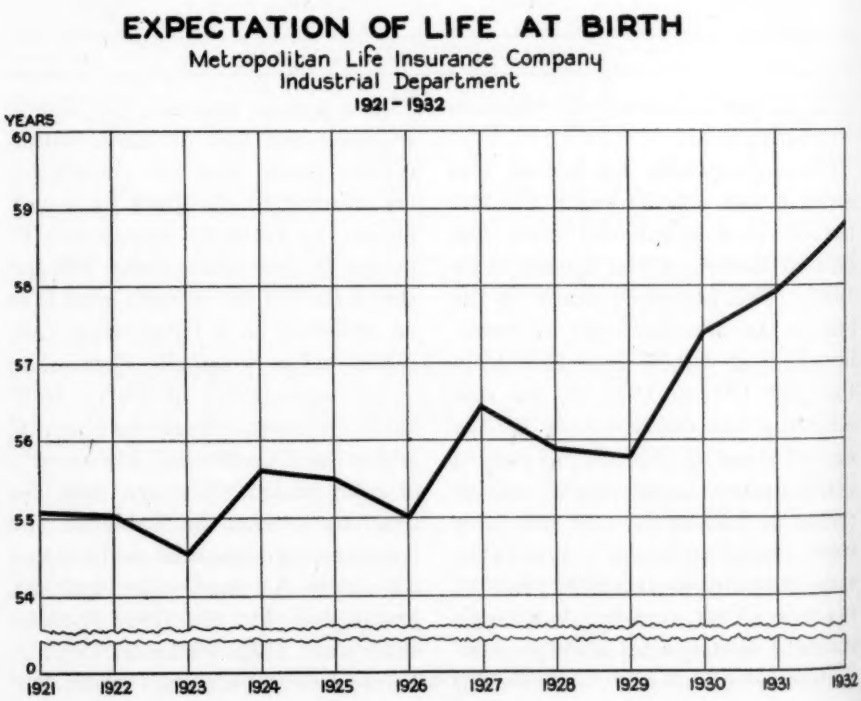
The expectation of life at birth has been computed only for the total Industrial Department, irrespective of color or sex. For ages ten and over, we present in Table II the figures for quinquennial years of age, separately for each color and sex group, and for the three remarkable years, 1930, 1931 and 1932.*

*Corresponding figures for 1911-1912 and 1921 will be found on page 1 of our issue of December, 1931.

TABLE II

Expectation of Life in Years at Selected Ages, 10 Years and Over. By Color and Sex. Metropolitan Life Insurance Company, Industrial Department, 1930, 1931 and 1932

Age	Total Persons			White						Colored					
				Males			Females			Males			Females		
	1932	1931	1930	1932	1931	1930	1932	1931	1930	1932	1931	1930	1932	1931	1930
10	54.08	53.56	53.28	53.11	52.49	52.38	56.55	56.41	56.14	46.31	45.03	44.66	48.16	46.50	46.47
15	49.45	48.97	48.69	48.48	47.90	47.79	51.86	51.71	51.49	41.90	40.71	40.32	43.77	42.29	42.26
20	44.98	44.57	44.32	43.97	43.43	43.35	47.31	47.20	47.01	37.97	37.00	36.49	39.98	38.74	38.70
25	40.71	40.38	40.15	39.58	39.08	39.03	42.97	42.88	42.71	34.24	33.61	33.02	36.48	35.47	35.41
30	36.51	36.26	36.06	35.26	34.81	34.75	38.67	38.61	38.47	30.58	30.11	29.55	32.95	32.09	32.01
35	32.37	32.18	32.00	31.05	30.66	30.59	34.38	34.36	34.20	27.05	26.67	26.11	29.40	28.63	28.54
40	28.32	28.21	28.00	26.99	26.68	26.60	30.14	30.16	29.95	23.61	23.46	22.82	25.92	25.25	25.16
45	24.42	24.39	24.16	23.13	22.91	22.77	26.02	26.09	25.83	20.43	20.41	19.82	22.68	22.03	21.97
50	20.72	20.76	20.53	19.54	19.37	19.22	22.05	22.19	21.91	17.49	17.45	17.04	19.65	19.01	18.88
55	17.23	17.34	17.14	16.21	16.15	16.02	18.31	18.47	18.22	14.68	14.69	14.43	16.76	16.24	15.99
60	14.05	14.19	14.02	13.21	13.22	13.15	14.91	15.03	14.83	12.20	12.20	11.92	14.19	13.62	13.41
65	11.25	11.38	11.21	10.60	10.59	10.53	11.94	12.02	11.82	10.06	10.03	9.66	12.01	11.34	11.16
70.	8.80	8.95	8.81	8.41	8.31	8.25	9.38	9.44	9.28	8.13	8.20	7.86	10.14	9.48	9.30



Rise in Deathrate Restricted to Older Ages

It is a noteworthy fact that the slight increase in mortality which has occurred in the first half of this year among Metropolitan Industrial policyholders has been entirely limited to persons at the older ages. It will be recalled that at the end of the first six months of 1933 there was a rise of 3.3 per cent. in the deathrate at all ages, as compared with the same period of last year. On analyzing the figures for age periods, however, it is found that the deathrates of this year show a decline at every age period up to and including age 34. At ages 35 to 44 there was practically no change. It is only beyond age 45 that the deathrate has risen. So far as younger persons are concerned, the mortality record has continued very favorable during the entire period of the depression, including the first six months of the current year.

That there should have been a slight setback at the older ages is not at all surprising, for we are by this time accustomed to the thought that it will probably be very difficult to effect any appreciable improvement in the mortality of persons after midlife. Naturally, if there is any slight falling off in the rate of improvement of our mortality, this will be felt first of all at the older ages. The years 1930, 1931 and 1932, as we have shown on page 5 of this Bulletin, have set such excellent records in longevity that a slight let-up in the rate of improvement this year can be accepted without undue pessimism.

An examination of the facts bears out this view. For if we analyze the simple figure for the deathrate into its detailed constituents as regards the diseases which contribute to the total, we find that the increase in the deathrate this year has been almost altogether restricted to deaths from heart disease, cancer, diabetes, chronic nephritis and cerebral hemorrhage. These are typically diseases of advanced life, as is indicated by the fact that, last year, 68 per cent. of the deaths from them occurred among persons 55 years of age and over. We are, therefore, concerned with an increased mortality from a group of diseases which chiefly affect the older ages and which have shown a rising tendency for some time, even before the depression set in. Unfortunately, medical and sanitary science of today has no very effective weapons against them. Occasional setbacks in this field cannot be charged up to any ineffectiveness of the public health campaign nor to the deprivations from which the people may have suffered. There is today a decided limit to our powers in this matter. The conquest of cancer, of heart disease and of the other degenerative diseases is still a thing for the future.

The converse, which it is more pleasant to dwell on, is also true, namely, that the improvements which have taken place in the death-

rates at the younger ages are due in large part to the control which has been gained over infantile diarrhea and enteritis, diphtheria and other communicable diseases; a distinct advance has also been made in the fight against pneumonia; and, most of all, have we cause for gratification over the very signal success that has attended the campaign against tuberculosis. These are diseases that claim their victims entirely or largely among young people, and as regards them, the hardships of the last three years have not made the slightest impression.

Health Record for July, 1933

WE HAVE called attention, in various numbers of the STATISTICAL BULLETIN, during the last three years to the remarkably low deathrates of the wage-earning population registered throughout the long period of unemployment. We can now report that with the turn of the tide the health record of the people remains excellent and is improving.

There could be no better evidence of how satisfactory current health conditions are than the remarkably low deathrate for July among the large cross-section of the American and Canadian populations constituted by the Industrial policyholders of the Metropolitan Life Insurance Company. Their mortality in July was at the amazingly low figure of 7.4 deaths per thousand lives exposed to risk. This marks a new low point in mortality for the month of July in this large group of insured men, women and children. Only twice in their history has the above figure been closely approached, namely, in July, 1932, when the deathrate was 7.5, and in 1922 when it was 7.6.

The cumulative deathrate for the seven elapsed months, although a little above that for the same part of last year, is nevertheless lower than for all other years, with a single exception. Among approximately 1,100,000 Canadian Industrial policyholders, the current year, to date, has registered a lower mortality rate than ever before. In the Pacific Coast and Mountain states, however, the year-to-date rate is nearly 6 per cent. higher than at this time last year; and in the rest of the United States it is 3 per cent. higher.

At the end of July the following stand out as of foremost importance among the favorable items in the 1933 health record. The year has been free from widespread epidemics, with the exception of an influenza outbreak which began late in 1932 and carried over into January and February. This situation cleared up even before the close of the winter season. The cumulative diphtheria deathrate has been reduced to approximately one-half of the previous minimum, and no doubt remains that the end of the year will see a new low point in deaths charged to this disease; the tuberculosis deathrate has been reduced more than 7 per cent. from the previous low point recorded only last year, and a

new minimum for this disease, also, is assured for 1933; the mortality from pneumonia, despite a widespread outbreak of influenza last winter, shows a considerable drop from last year's figure, which was the minimum up to 1932; there has been improvement in the mortality from puerperal conditions and the rate for these, also, is likely to record a new low point at the end of 1933.

Another distinctly favorable element in the mortality record of 1933 is a drop of 4.6 per cent. in the suicide deathrate.

There have been, nevertheless, a few unfavorable developments. Due to last winter's outbreak, the cumulative influenza deathrate stands considerably higher than at this time in 1932. The upward tendency in cancer mortality is persisting; and at the end of July the deathrate was 5.6 per cent. higher than at this time in 1932. This is a new maximum for cancer; and a new high point will also be reached this year for diabetes, as the deathrate is now 9 per cent. above the previous maximum. All three of the principal degenerative diseases are registering higher deathrates this year than last. The most serious situation, here, is that for heart disease, with a rise since 1932 of 7.4 per cent. The homicide and accident deathrates are up slightly, but there has been a small drop in automobile fatalities.

The deathrate in the general population of the large cities of the United States for July was 9.7 per thousand estimated population, as compared with 10.6 in June and 10.2 in July, 1932. As compared with June, there was more sickness from poliomyelitis and typhoid fever, together with fewer cases of diphtheria, influenza, measles, scarlet fever and smallpox. Comparison with July of last year shows a few more cases of influenza and poliomyelitis, but less sickness from diphtheria, measles, scarlet fever, smallpox and typhoid fever.

A sharp rise in poliomyelitis cases was registered during July with reports from 45 states showing 369 cases as against 93 in June. The most noteworthy increases were in Massachusetts and New York, where the respective rises were from 6 to 74, and from 10 to 89 cases.

The following items are of special public health interest. The Michigan State Department of Health, because of a marked reduction in its budget, has discontinued the distribution of bacteriophage, as well as of scarlet fever toxin for active immunization, and the Dick test. The ROCKEFELLER FOUNDATION has given $4,000 to the Florida State Health Department to help defray the operating expenses of health units in that state. The EUGENICS RESEARCH ASSOCIATION, Cold Spring Harbor, New York, is offering prizes for original research on the inheritance of mental disorders among white persons. A statewide campaign against tuberculosis has been authorized by the CONNECTICUT STATE MEDICAL SOCIETY. The program will be to find persons who have tuberculosis by means of roentgenograms. The program will

be carried out only in those communities that request it. The SOUTH DAKOTA STATE MEDICAL ASSOCIATION has authorized its Cancer Committee to engage in an educational campaign to further the diagnosis and treatment of cancer. The AMERICAN SOCIETY FOR THE CONTROL OF CANCER is cooperating in this movement. It is proposed, for an initial period of one year, to concentrate on cancer of the breast. An INTERNATIONAL CONGRESS FOR THE SCIENTIFIC AND SOCIAL FIGHT AGAINST CANCER will be held in Madrid in October. The Indiana State Department of Child Health and Maternal Welfare has appointed a chairman for each Indiana medical district to cooperate in the promotion of child health. The INTERNATIONAL CONVENTION FOR LIMITING THE MANUFACTURE AND REGULATING THE DISTRIBUTION OF NARCOTIC DRUGS went into effect July 9th, by proclamation of the President. Plans have been made for a regional conference on social hygiene, which is to be held in Indianapolis, October 12th to 14th. The educational, medical, legal and protective measures of the social hygiene program will be discussed —more especially, the relation of social hygiene to the general health program.

The following table shows the mortality among Industrial policyholders for July, 1933; June, 1933, and July, 1932, together with the cumulative rates for the first seven months of each year.

METROPOLITAN LIFE INSURANCE COMPANY

Deathrates per 100,000 for Principal Causes. Weekly Premium-Paying Business in Industrial Department. All Ages (Annual Basis).*

MONTHS OF JULY, 1933; JUNE, 1933, AND JULY, 1932

CAUSES OF DEATH	ANNUAL RATE PER 100,000 LIVES EXPOSED*				
	July 1933	June 1933	July 1932	Cumulative January-July 1933	Cumulative January-July 1932
TOTAL—ALL CAUSES	741.2	902.6	748.1	912.3	888.1
Typhoid fever	2.2	.9	1.5	1.0	1.3
Measles	1.3	2.2	1.0	2.3	2.5
Scarlet fever	1.0	2.8	1.3	3.3	3.5
Whooping cough	2.5	2.1	2.7	2.4	3.5
Diphtheria	1.9	2.3	2.9	2.3	4.2
Influenza	3.2	7.1	6.3	29.2	23.0
Tuberculosis (All forms)	62.2	72.4	68.9	68.6	73.8
Tuberculosis of respiratory system	55.4	64.1	60.4	61.2	65.0
Cancer (All forms)	88.2	102.3	80.9	94.0	89.0
Diabetes mellitus	17.3	24.4	17.3	25.3	23.2
Cerebral hemorrhage; apoplexy	56.2	65.1	55.3	67.9	64.8
Diseases of heart†	132.5	168.2	139.9	173.5	161.6
Pneumonia (All forms)	27.4	47.7	32.8	73.8	77.0
Other respiratory diseases	7.1	9.6	6.8	10.7	10.1
Diarrhea and enteritis	12.4	11.5	11.6	8.6	8.7
Chronic nephritis (Bright's disease)	55.1	75.3	59.3	70.5	70.1
Puerperal state—total	7.4	9.0	10.1	10.0	10.8
Suicides	9.3	10.2	9.9	10.4	10.9
Homicides	6.0	7.1	4.3	6.1	6.0
Accidents—total	64.5	66.6	61.0	54.1	52.8
Automobile accidents	18.4	21.2	18.7	17.8	18.0
All other diseases and conditions	183.3	215.8	174.1	198.2	191.4

*The rates for 1933 are subject to slight correction, since they are based on provisional estimates of lives exposed to risk.

†Excludes pericarditis, acute endocarditis, acute myocarditis and angina pectoris.

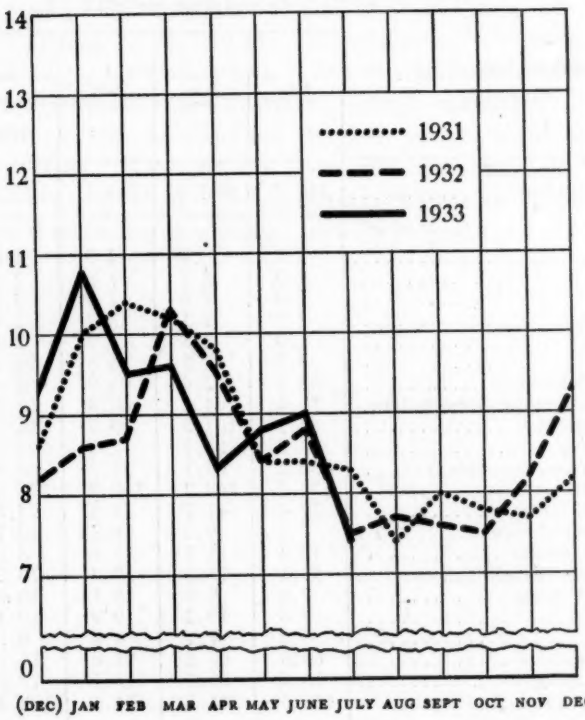
Correspondence on the subjects discussed in these BULLETINS may be addressed to: The Editor,

STATISTICAL BULLETIN,
Metropolitan Life Insurance Company,
1 Madison Avenue, New York City

DEATHRATES FROM ALL CAUSES

in the Metropolitan Life Insurance Company
Industrial Department

DEATHRATE PER 1,000—ANNUAL BASIS



1931	10.0	10.4	10.2	9.8	8.4	8.4	8.3	7.4	8.0	7.8	7.7	8.2
1932	8.6	8.7	10.3	9.5	8.4	8.8	7.5	7.7	7.6	7.5	8.2	9.3
1933*	10.8	9.5	9.6	8.3	8.8	9.0	7.4					

**Rates for 1933 are provisional.*

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